

Claims

What is claimed is:

- 1 1. A method, including:
2 transmitting a first number of training symbols corresponding to a first
3 number of communication chains to solicit a response including a second
4 number of training symbols corresponding to a second number of
5 communication chains.
- 1 2. The method of claim 1, wherein the first number of communication chains
2 corresponds to a number of receive chains, and wherein the second number
3 of communication chains corresponds to a number of transmit chains.
- 1 3. The method of claim 1, further including:
2 receiving a request to transmit at the first number of communication chains;
3 and
4 determining a transmit power level and a receive gain level associated with
5 the first number of communication chains.
- 1 4. The method of claim 3, further including:
2 determining multiple transmit power levels and receive gain levels
3 associated with the first number of communication chains.
- 1 5. The method of claim 1, further including:
2 transmitting a clear to transmit response and the first number of training
3 symbols from the first number of communication chains; and
4 calibrating a number of transmit and receive chains included in the first
5 number of communication chains.

- 1 6. The method of claim 1, further including:
2 receiving the second number of training symbols and data; and
3 estimating a communications channel associated with the first number of
4 communication chains based on the second number of training symbols.
- 1 7. The method of claim 1, wherein the first number of communication chains
2 corresponds to a number of transmit chains, and wherein the second number
3 of communication chains corresponds to a number of receive chains.
- 1 8. The method of claim 1, further including:
2 transmitting a request to transmit and the first number of training symbols;
3 and
4 calibrating the first number of communication chains.
- 1 9. The method of claim 1, further including:
2 receiving a clear to transmit response and the second number of training
3 symbols; and
4 estimating a channel associated with the first number of communication
5 chains.
- 1 10. The method of claim 1, further including:
2 transmitting a header including a length specification corresponding to the
3 first number of training symbols.
- 1 11. A method, including:
2 transmitting a second number of training symbols corresponding to a second
3 number of communication chains in response to receiving a first number of
4 training symbols corresponding to a first number of communication chains.

1 12. The method of claim 11, wherein the first number of communication chains
2 corresponds to a number of receive chains, and wherein the second number
3 of communication chains corresponds to a number of transmit chains.

1 13. The method of claim 11, further including:
2 receiving a clear to transmit response and the first number of training
3 symbols at the second number of communication chains; and
4 estimating a communications channel associated with the second number of
5 communication chains based on the first number of training symbols.

1 14. The method of claim 13, further including:
2 determining multiple transmit power levels and receive gain levels
3 associated with the first number of communication chains.

1 15. The method of claim 11, further including:
2 transmitting the second number of training symbols and data; and
3 calibrating a number of transmit and receive chains included in the second
4 number of communication chains based on the second number of training
5 symbols.

1 16. The method of claim 11, wherein the first number of communication chains
2 corresponds to a number of transmit chains, and wherein the second number
3 of communication chains corresponds to a number of receive chains.

1 17. The method of claim 11, further including:
2 transmitting a clear to transmit response and the second number of training
3 symbols; and
4 calibrating the second number of communication chains.

1 18. The method of claim 11, further including:

2 receiving a request to transmit and the first number of training symbols; and
3 estimating a channel associated with the second number of communication
4 chains.

1 19. The method of claim 11, further including:

2 transmitting a header including a length specification corresponding to the
3 second number of training symbols.

1 20. An article including a machine-accessible medium having associated
2 information, wherein the information, when accessed, results in a machine
3 performing:

4 transmitting a second number of training symbols corresponding to a second
5 number of communication chains in response to receiving a first number of
6 training symbols corresponding to a first number of communication chains.

1 21. The article of claim 20, wherein the information, when accessed, results in
2 the machine performing:

3 receiving a clear to transmit response and the first number of training
4 symbols at the second number of communication chains; and
5 estimating a communications channel associated with the second number of
6 communication chains based on the first number of training symbols.

1 22. The article of claim 20, wherein the information, when accessed, results in
2 the machine performing:

3 transmitting the second number of training symbols and data; and
4 calibrating a number of transmit and receive chains included in the second
5 number of communication chains based on the second number of training
6 symbols.

1 23. An article including a machine-accessible medium having associated
2 information, wherein the information, when accessed, results in a machine
3 performing:

4 transmitting a first number of training symbols corresponding to a first
5 number of communication chains to solicit a response including a second
6 number of training symbols corresponding to a second number of
7 communication chains.

1 24. The article of claim 23, wherein the information, when accessed, results in
2 the machine performing:

3 transmitting a request to transmit and the first number of training symbols;
4 and
5 calibrating the first number of communication chains.

1 25. The article of claim 23, wherein the information, when accessed, results in
2 the machine performing:

3 receiving a clear to transmit response and the second number of training
4 symbols; and
5 estimating a channel associated with the first number of communication
6 chains.

1 26. An apparatus, including:

2 a first number of communication chains to transmit to a device a first
3 number of training symbols corresponding to the first number of communication
4 chains and to solicit a response from the device including a second number of
5 training symbols corresponding to a second number of communication chains
6 included in the device.

1 27. The apparatus of claim 26, wherein the first number of communication
2 chains corresponds to a number of transmit chains and the second number of
3 communication chains corresponds to a number of receive chains.

1 28. The apparatus of claim 27, further including:
2 a calibration module to calibrate the number of transmit chains.

1 29. The apparatus of claim 26, wherein the first number of communication
2 chains corresponds to a number of receive chains and the second number of
3 communication chains corresponds to a number of transmit chains.

1 30. The apparatus of claim 29, further including:
2 an estimation module to estimate at least one channel associated with the
3 number of receive chains.

1 31. A system, including:
2 a first device having a first number of communication chains to transmit a
3 first number of training symbols corresponding to the first number of
4 communication chains; and
5 a second device having a second number of communication chains to receive
6 the first number of training symbols, and to respond by transmitting to the first
7 device a second number of training symbols corresponding to the second
8 number of communication chains.

- 1 32. The system of claim 31, further including:
2 a first number of antennas corresponding to the first number of
3 communication chains; and
4 a second number of antennas corresponding to the second number of
5 communication chains.
- 1 33. The system of claim 31, further including:
2 a calibration module to calibrate the first number of communication chains.
- 1 34. The system of claim 31, further including:
2 an estimation module included in the first device to estimate at least one
3 channel associated with the first number of communication chains.
- 1 35. The system of claim 31, wherein the number of communication chains are
2 capable of being coupled to a number of antennas to form a portion of a
3 multiple-input, multiple-output (MIMO) system.